Java(tm) in Retail

Drew Wofford

Consulting I/T Specialist

IBM Corporation

Sources of information include:

www.ibm.com\java\home.html

java.sun.com

www.javapos.com

Trade press

Trade shows

Sales representatives and business partners

● Agenda

Java Introduction
The Java Promise and Reality
What is the Attractiveness of Java for Retail
Java Initiatives by Retail Store Solutions
Java Initiatives by Business Partners
Java Activities by Retailers
Frequently Asked Questions
Messages
Java Sources

IBM

Retail Solutions

FIVE YEARS AGO, JAVA DEVELOPMENT TOOLS WERE
A COFFEEMAKER, SPOON AND STYROFOAM CUP

IBM

Gartner Group, 1998

The Basic Java Grinds ...

- JDK
  - Java Developers Kit. Available at no charge from the Sun and IBM Web sites, it includes tools to create Java applets and applications, as well as the environment to run Java solutions.
- JVM
  - Java Virtual Machine. This is the layer which sits between the native operating system and the Java run time environment, which allows for complete portability of code. The JVM is installed as part of the JDK or the JRE.
- JRE
  - Java Runtime Environment. Everything you need to install a JVM and run Java without the tools

Adding some Flavor to the Blend ...

- JFC
  - Java Foundation Classes. Think of them as Java's answer to the Microsoft Foundation classes but better because they are platform independent. They include graphics and security classes.
- Swing
  - A new set of Java Graphics classes. These classes have far greater variety, better and more varied look and feel, and do not rely on the underlying platform's graphics classes. Use them!
- AWT
  - The original set of graphics classes for Java. Forget them; they are like instant coffee compared to Swing.

And for Gourmet Coffee Drinkers ...

- Embedded Java/Personal Java
  - Imagine Java applets running in your TV to customize and configure your TV preferences for each member of a household; or Java running in networked devices so they can communicate with each other.
- Java Card
  - Its the Java Smart Card. Java running in a chip on your card, it runs multiple applications at once, is downloadable with new applications, and is compatible with other Smart Card standards.
- Java 2 Platform
  - Hold on ... we're getting there!

IBM

● The Java Promise

High Function Language
Platform Independent
Network Centric
Web Focused
Ability to create full function applications
Openness
Extendibility

IBM

The Java Reality...

- High Function Language
- Platform Independent
- Network Centric
- Web Focused
- Ability to create full function applications
- Openness
- Extendibility

- JDK 1.1 release continues to extend Java Language
- Java VM should allow full portability; currently limited by OS uniqueness
- Serious performance concerns with an interpretive language
- No mission critical deployments in retail

January 1997

IBM

The Java Reality...

- High Function Language
- Platform Independent
- Network Centric
- Web Focused
- Ability to create full function applications
- Openness
- Extendibility

- JDK 1.1.5 release continues to extend Java Language
- Certification process in place to guarantee portability - 100% Pure Java
- JIT's are improving performance; JDK1.2 promises additional performance improvements
- JFC release addresses functionality delta with MFC
- Significant Retail Activity

January 1998

Retail Solutions

IBM

The Java Reality... Today

- High Function Language
- Platform Independent
- Network Centric
- Web Focused
- Ability to create full function applications
- Openness
- Extendibility

- Java 2 Platform Released
- Significant new Security model
- Significant improvements to JIT technology continues to mitigate performance concerns
- Java Card, Personal Java, JavaMail, Embedded Java all broaden the scope of Java in the marketplace
- Java moves from a client side to server side environment

January 1999

IBM

Retail Solutions

Java is a Development Technology

- Java is the replacement for c++
  - JIT's and continued efficiency tuning eliminates the concern for speed and performance

- Java can replace Visual Basic as a Rapid Application Development tools for Graphical Interfaces

- Java combines the best of both tools into a single development tool

- Java can preserve current code investments
  - C++ Native code (JNI) wrappering
  - Cobol(!) wrappers

- Java is server development can cross all servers in an enterprise

Coffee Break!!

Coffee Talk ....

What is the big debate between Microsoft and Sun?

Coffee Break!!

IBM, Sun, Oracle, Netscape ......

     Write is once, run it anywhere

Microsoft

     Write is once, run it anywhere,
     NT is everywhere

Why is Java Important to Retail ...

- Retailers frequently grow through acquisition
- The ideal store system would be portable across different vendor hardware and environments
- Java allows a single solution to be deployed across platforms running different environments on different hardware
- Retail has always believed in Thin client computing; Java and the NC compliment retail directions
- Retailers claim that availability of development resources is a critical inhibitor today; Java resources are available and growing dramatically
- Retail is a cost sensitive business, and Java is a scaleable yet cost effective solution

Java Initiatives by Retail Store Solutions

- Java Virtual Machine on 4690 Operating System
  - Full graphical support
    - 256 colors/ 640X480 resolution
    - Swing and AWT Supported
  - JDK 1.1.6 compliant
  - TCP/IP support at the terminal
  - Port by IBM Huersley Labs in United Kingdom
  - Limited to 486 chip set and higher
    - no 4683 support
    - no 4680 Operating System support
- Allows Java Applications to communicate to 4690 applications and pass data
- JATTACH allows Java applications access to 4690 device data and the I/O Processor

Java Initiatives by Retail Store Solutions

● Why are we developing a 4690 JVM?
  – Graphical interface to current application suite
  – User exit extensions in Java; no longer limited to CBasic.
    ■ support through pipes
    ■ Java can not be used inline with CBasic
  – New Java applications running at POS alongside of 4690 POS
  – New POS clients deployed on 4690 JVM with 4690 controller and data structures
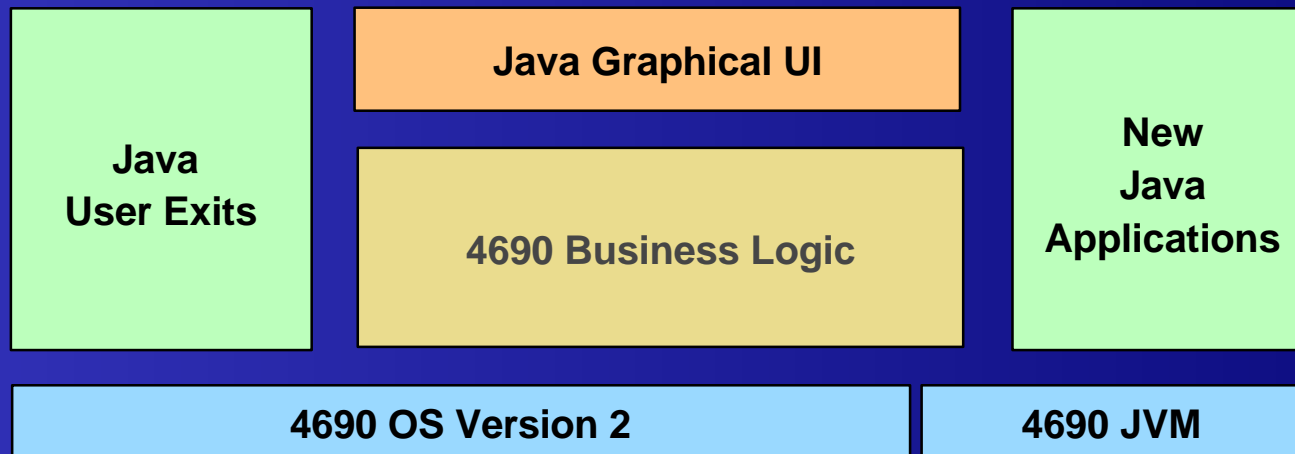
IBM's Three Part Java Strategy

IBM Initiatives

- Enhance the Virtual Machine on all Platforms
- Build Middleware to enable deployment of Java solutions for mission critical applications
- Bring the best Java solutions to the market to address business requirements and eBusiness

Retail Store Solutions

- Enhance the JVM in version 2 of 4690 OS
- Develop JavaPOS open peripheral drivers
- Deploy IBM middleware on 4690OS
- Work with business partners like Kyrus to bring Java solutions to the retail marketplace
- IBM Java Services

Retail Solutions

IBM

IBM's Premiere 4690 Application Enhancements will continue Delivering Business Value through Technology Innovation

Next Generation GSA
Develop it Now!!

Java User Exits	Java Graphical UI	New Java Applications
	4690 Business Logic	

4690 OS Version 2	4690 JVM

Retail Solutions

IBM

Java Initiatives by Retail Store Solutions

- JavaPOS Peripheral Drivers
  - IBM leads a consortium of retailers and vendors developing Java standards for peripheral connectivity
    - IBM, SUN, NCR
    - JCPenney, Home Depot
  - Based on the OPOS driver specification
  - Deployed in Java
  - JavaPOS specification issued
  - Retail Store Solutions developing ahead of the specification for speed to market
  - Need JDK1.2 with enhanced I/O support from SUN

  - Two Web Sites for your information

IBM

Why Aren't we writing new Java POS?

- Because we are developing a Java POS Solution instead
- Solution Development is multi-part
- User Interface
  - User Interfaces will always vary by customer and are ideally suited as service engagements
- Business Logic
  - ACE and SA provide the best business logic in the industry
- Middleware
  - Retail Store Solutions leads JavaPOS and middleware deployment
- Platform deployment
  - 4690 is the best client platform for retail and the only truly thin JVM enabled platform widely recognized by Retail
  - DDS/CSF and TS provide cross platform support
- StoreFlow JPV will be a fully realized Java POS which can run under the 4690 JVM or other host platforms.

Java Initiatives by Business Partners

- BeanStore by Datafit, UK
  - Pure Java Point-of-Sale application; no backroom support. Currently being evaluated as a possible StoreFlow Java client
  - Datafit has a high degree of familiarity with 4690 through their database product
- Retail Foundation by Cornerstone
  - Library based collection of retail objects deployed in Java.
  - Point-of-Sale, backoffice and ISP applications
- JStore by Easy International, Canada
  - Graphical, intuitive user interface
  - Easy to use, easy to train
- Kyrus JGUI
  - Redeployed in Java as a front end interface to 4690 applications
  - Replaces the current MidSouth GUI offering
- Additional activities by vendors such as Gateway Data Sciences

Java Initiatives by Retailers

- Eddie Bauer
  - MultiChannel sales application in 100% Pure Java
  - IBM provided skills and competency training
  - IBM assisted in building the proof of concept
  - Retail Store Solutions was a member of the IBM team
  - POS application running on 4690 JVM as well as on new network devices
- Home Depot
  - Store level support applications deployed on handheld devices
  - Point of Sale replacement

Java Initiatives by Retailers

- Circuit City
  - Rewrite all store level applications in Java
  - Replace current workstations with Network Computers
- JCPenney
  - Rearchitect and create a new store system through Java and Network Computers
- The Gap
  - Deploy their Internet ordering site with Java
- Sears
  - Deploy a new ordering system in Java
  - Deploy a new gift registry system in Java

Frequently Asked Questions ...

- Can a Network Computer be used as a Point-of-Sale terminal?
  - Yes, it can, and some retailers such as Home Deport plan on using NC's as POS replacements. However, just as PC Cash Drawer has never been specifically hardened for Retail, IBM's new line of Network Centric POS is a better choice for most retailers.
- I've heard that Point-of-Sale peripherals will not attach to a Network Computer.
  - Not true. A common configuration today is the keyboard, scanner, and MSR coming into the keyboard port with a wedge; a POS printer such as the 4610 attached to the serial port; and the cashdrawer attached to the printer. While not the best configuration, its a viable one.

Retail Solutions

IBM

Frequently Asked Questions ...

- Does this mean that Retail Store Solutions will be developing an NC for Point-of-Sale?
  - The fact that some retailers are testing NC's, and the fact that you can configure an NC with POS peripherals does not necessarily mean its the best solution. Retail Store Solutions is developing the a Network Centric POS family, which provides a better range of options that simply a Network Computer.
- What is San Francisco?
  - San Francisco is a framework, or collection, of reusable Java beans, or components, which allow developers to create applications more quickly and more reliably. Currently, the Bean repository is focused on inventory and financial applications.

IBM

Frequently Asked Questions ...

- What are Java Beans?
  - The best way to brew a good cup of coffee , and the best way to develop new applications. Java Beans and the Java Foundation Classes are the cross platform, environment independent answers to Microsoft's Active-X components and OLE objects. Java Beans are designed to provide all the same function as Active-X objects, but without the restrictions of a Microsoft environment.
- How does StoreFlow play in the Java Initiatives?
  - StoreFlow's component architecture makes it ideally suited to run in a network centric environment. StoreFlow logical components can physically reside anywhere in the network. StoreFlow JPV will be a pure Java POS developed with the JFC and Swing. StoreFlow Backoffice applets are being developed to move reports and query functions to a browser. JPV will be the first POS client available for StoreFlow in North America.

Retail Solutions

IBM

Frequently Asked Questions ...

- Why hasn't Java Taken over the World?
  - Rome wasn't built in a day, and great coffee doesn't get brewed in a Mr. Coffee. There have been continued concerns over performance, which has slowed some efforts down. These are largely addressed, but there are residual concerns. The Core Java platform has also been changing, and many people have been waiting for the Java 2 Platform which finally solidifies the Java core and expands functionality. Finally, as people look to the Y2K issues, new development is more likely to explode in 2000 rather than in the year leading up to it.

Why Should I Consider Java Technology?

- Java is the most exciting technology for Retail since the introduction of 4680 by IBM in 1986.
- Java is the only platform independent solution for Retail which provides both software and hardware independence.
- Retail Store Solutions is leading the Java initiative for Retail through participation on the JavaPOS committee, through development of enabling software for Java, and through integration of best of breed Java solutions into the store architecture.
- Java is a relatively new, rapidly maturing technology which is not ready today to run a full retail store. Java standards work, and Java middleware components, such as JavaPOS drivers, must be completed first.
- IBM's Worldwide Software Strategy, StoreFlow, is being enhanced and extended with Java as the primary development vehicle.

Retail Solutions

IBM

Why Should I Consider Java Technology?

- Standards work and middleware components will be completed in 1999
- Language maturity and stability has been greatly enhanced with the release of the Java 2 Platform.
- Interface and peripheral support will be enhanced with USB support
- The first significant store applications will be moved into production in 1999.
- Expect to see Java deployment in the store explode in 2000.

Retail Solutions

IBM

What are the Competing Technologies?

- Windows CE
  - Platform Specific
  - Not compatible with existing Windows Applications
- Hydra/Cytrix
- ActiveStore Initiative
- Traditional Thin environments
  - Limited Functionality
- Embedded NT
  - Way off

For Additional Information ...

- Retail Store Solutions Java Retail Home Page
  - http:\\w3rnds.raleigh.ibm.com\allmkt\47jb\dreww.html\java.html
- Retail Store Solutions Java Retail Worldwide Team
  - Drew Wofford
    (919)301-5325 or tie-line 352-5325
    DREWW at IBMUSM24 or
    Drew Wofford/Raleigh/IBM
- IBM Java Home Page
  - http:\\www.ibm.com\java\home.html
- SUN Java Home Page
  - http:\\java.sun.com\
- JavaPOS Homepage
  - http:\\www.javapos.com

IBM

Java is a Trademark of Sun MicroSystems